

CLAIMS

What is claimed is:

1. A device comprising:
a data transceiver adapted to be coupled to one or more data lanes of a device-to-device interconnection (DDI);
a negotiation section comprising:
logic to detect 8B/10B code groups on each data lane of the DDI; and
configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups.
2. The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a 1000BASE-X data transmission mode in response to detecting 8B/10B code groups on a single data lane.
3. The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a XAUI data transmission mode in response to detecting 8B/10B code groups on four data lanes.
4. The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the DDI according to an SGMII data transmission mode in response to detecting 8B/10B code groups on a single data lane.
5. The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on each of a plurality of data lanes of the DDI according to a 1000BASE-X data transmission mode in response to detecting 8B/10B code groups on each of the plurality of data lanes.

6. The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data each of a plurality of data lanes of the DDI according to an SGMII data transmission mode in response to detecting 8B/10B code groups on each of the plurality of data lanes.

7. The device of claim 1, wherein the data transceiver is capable of operating in one or more data transmission modes, and wherein the negotiation circuit further comprises logic to transmit a link pulse signal on at least one data lane in the DDI during the negotiation period to identify the one or more data transmission modes.

8. The device of claim 1, wherein the data transceiver circuit is adapted to be coupled to at least one differential pair corresponding to at least one of the data lanes.

9. The device of claim 8, wherein the DDI is formed in a printed circuit board comprising a pair of copper traces for each differential pair.

10. A device comprising:
a data transceiver adapted to be coupled to one or more data lanes of a device-to-device interconnection (DDI); and
a negotiation section comprising:
logic to transmit a Base Page message in the DDI; and
logic to transmit a Next Page message in the DDI following transmission of the Base Page message, the Next Page message specifying one or more available data transmission modes for transmitting the Ethernet frames in the DDI.

11. The device of claim 10, wherein the Next Page message comprises at least a first bit indicating an availability of a first data transmission mode using a single data lane in the DDI and a second bit indicating an availability of a second data transmission mode using four data lanes.

12. The device of claim 10, wherein the Next Page message comprises at least a first bit indicating an availability of a 1000BASE-X data transmission mode, at least a second bit indicating a XAUI data transmission mode and a third bit indicating a 10 Gbps data transmission mode over a single data lane.

13. The device of claim 10, wherein the data transceiver further comprises a physical medium attachment (PMA) section and a physical coding sublayer (PCS) corresponding to each of the plurality of data transmission modes, and wherein the configuration logic comprises logic to enable the PMA and PCS sections associated with the selected data transmission mode.

14. The device of claim 10, wherein the configuration logic comprises logic to selectively configure the data transceiver circuit to transmit and receive data on the DDI in a data transmission mode according to either 10 gigabit attachment unit interface (XAUI) or at least one of 1000BASE-X and serial gigabit media independent interface (SGMII).

15. The device of claim 10, wherein the data transceiver is capable of operating in one or more data transmission modes, and wherein the negotiation circuit further comprises logic to transmit a link pulse signal on at least one data lane in the DDI during the negotiation period to identify the one or more data transmission modes.

16. The device of claim 10, wherein the data transceiver circuit is adapted to be coupled to at least one differential pair corresponding to at least one of the data lanes.

17. The device of claim 16, wherein the DDI is formed in a printed circuit board comprising a pair of copper traces for each differential pair.

18. The device of claim 16, wherein the configuration logic comprises logic to selectively configure the data transceiver to transmit and receive data to a plurality of ports couple to the DDI in response to the link pulse signal.

19. A system comprising:
an ATM network to provide one or more ATM services;
a plurality of subscriber client terminals, each subscriber client terminal being capable of receiving one or more ATM services from the ATM network; and
an ATM distribution node comprising:
a data transceiver coupled to one or more data lanes of a device-to-device interconnection (DDI) and coupled to at least one of the ATM network and at least one of the subscriber client terminals;

a negotiation section comprising:

logic to detect 8B/10B code groups on each data lane of the DDI;

and

configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups.

20. A system comprising:

an ATM network to provide one or more ATM services;

a plurality of subscriber client terminals, each subscriber client terminal being capable of receiving one or more ATM services from the ATM network; and

an ATM distribution node comprising:

a data transceiver coupled to one or more data lanes of a device-to-device interconnection (DDI) and coupled to at least one of the ATM network and at least one of the subscriber client terminals;

a negotiation section comprising:

logic to transmit a Base Page message in the DDI; and

logic to transmit a Next Page message in the DDI following transmission of the Base Page message, the Next Page message specifying one or more available data transmission modes for transmitting the Ethernet frames in the DDI.

21. A method comprising:

detecting 8B/10B code groups on at least one data lane of a device-to-device interconnection; and

selectively configuring a data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups.

22. A method comprising:

transmitting a Base Page message in a DDI; and

transmit a Next Page message in the DDI following transmission of the Base Page message, the Next Page message specifying one or more available data transmission modes for transmitting the Ethernet frames in the DDI.

23. A system comprising:
a media access controller comprising a media independent interface (MII); and
a communication device comprising:
a data transceiver adapted to be coupled to one or more lanes of a DDI,
the data transceiver being coupled to the MII to transmit data between the MII
and the DDI; and
a negotiation section comprising:
logic to detect 8B/10B code groups on each data lane of the DDI;
and
configuration logic to selectively configure the data transceiver
to transmit and receive data on the DDI according to a data transmission
mode based upon the detected 8B/10B code groups.
24. The system of claim 23, wherein the system further comprises a switch
fabric coupled to the MAC.
25. The system of claim 23, wherein the system further comprises a packet
classification device coupled to the MAC.
26. A system comprising:
a media access controller comprising a media independent interface (MII); and
a communication device comprising:
a data transceiver adapted to be coupled to one or more lanes of a DDI,
the data transceiver being coupled to the MII to transmit data between the MII
and the DDI; and
a negotiation section comprising:
logic to transmit a Base Page message in the DDI; and
logic to transmit a Next Page message in the DDI following
transmission of the Base Page message, the Next Page message
specifying one or more available data transmission modes for
transmitting the Ethernet frames in the DDI.
27. The system of claim 26, wherein the system further comprises a switch
fabric coupled to the MAC.

28. The system of claim 26, wherein the system further comprises a packet classification device coupled to the MAC.

29. A system comprising:
a physical layer communication device to transmit data between a transmission medium and a media independent interface (MII); and
a communication device comprising:
a data transceiver adapted to be coupled to one or more lanes of a DDI, the data transceiver being coupled to the MII to transmit data between the MII and the DDI; and
a negotiation section comprising:
logic to detect 8B/10B code groups on each data lane of the DDI;
and
configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups.

30. The system of claim 29, wherein the physical layer communication device is adapted to transmit data between the MII and a fiber optic cable.

31. The system of claim 29, wherein the physical layer communication device is adapted to transmit data between the MII and a twisted wire pair cable.

32. A system comprising:
a physical layer communication device to transmit data between a transmission medium and a media independent interface (MII); and
a communication device comprising:
a data transceiver adapted to be coupled to one or more lanes of a DDI, the data transceiver being coupled to the MII to transmit data between the MII and the DDI; and
a negotiation section comprising:
logic to transmit a Base Page message in the DDI; and
logic to transmit a Next Page message in the DDI following transmission of the Base Page message, the Next Page message

specifying one or more available data transmission modes for transmitting the Ethernet frames in the DDI.

33. The system of claim 32, wherein the physical layer communication device is adapted to transmit data between the MII and a fiber optic cable.

34. The system of claim 32, wherein the physical layer communication device is adapted to transmit data between the MII and a twisted wire pair cable.